

REMARKS

In the Final Office Action identified above, the Examiner:

- a) rejected claims 9 and 15 under 35 U.S.C. § 102(e) as being anticipated by Naruoka (US 2003/0113941, "Naruoka");
- b) rejected claims 6, 9, 10, 12-14, 23, 24, 32, 33, 35, and 36 under 35 U.S.C. § 103(a) as being [unpatentable over] Barge et al. (US 2005/0208322, "Barge") in view of Naruoka;
- c) rejected claims 8, 11, 25, and 34 under 35 U.S.C. § 103(a) as being unpatentable over Barge and Naruoka in view of Sato (US Patent No. 6,143,629, "Sato");
- d) rejected claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Barge and Naruoka in view of Chiang et al. (US 2005/0092348, "Chiang"); and
- e) objected to claims 16-21 as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

By the present amendment, Applicants propose cancelling claim 8 without prejudice or disclaimer of its subject matter, and amending claims 9 and 32-35 to more appropriately define their invention. Upon entry of this Amendment after Final, claims 6 and 9-36 will be pending, with claims 6, 9-25, and 32-36 presented for examination.

Applicants respectfully traverse the Examiner's rejection of claims 9 and 15 under 35 U.S.C. § 102(e) as being anticipated by Naruoka. In order to properly establish that Naruoka anticipates Applicants' claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly

described or under principles of inherency, in that single reference. Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Naruoka fails to disclose each and every element recited in claim 9. In particular, Naruoka does not teach, at least, the claimed method of inspecting a semiconductor wafer including “removing said film constituting a device structure including a device pattern with a chemical solution to expose the crystal surface of the semiconductor wafer,” as recited in amended claim 9.

Naruoka teaches forming an SOI substrate 4 comprising support substrate 1 of silicon, buried oxide layer 2 of silicon oxide, and SOI layer 3 of silicon containing crystal defects 5a, 5b, and 5c. Naruoka, [0031]. Silicon oxide film 6 and metal film 7 are formed on SOI layer 3. Naruoka, [0032-0033]. A heat treatment is carried out so that metals of metal film 7 diffuse into SOI layer 3 and are gettered by crystal defects 5a to 5c, and as a result, silicide regions 8a to 8c are formed in portions where the crystal defects 5a to 5c have existed, respectively. Naruoka, [0034].

The Examiner contends that Naruoka discloses “removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect [0031-0037].” Final Office Action at page 2. The Examiner apparently contends that silicon oxide film 6 and metal film 7 of Naruoka correspond to the claimed device pattern.

Applicants are unable to identify any disclosure of such “removing a surface layer of a semiconductor wafer by selective etching without dicing” in the cited portion of Naruoka. Moreover, Naruoka’s films 6 and 7 are layers only provided to facilitate diffusion of metal impurities into crystal defects 5a to 5c of SOI layer 3. Films 6 and 7 therefore **do not contain a device pattern**, and thus **cannot** constitute the claimed “device structure including a device pattern,” as recited in claim 9. Moreover, the disclosure of Naruoka is entirely silent as to removing any film constituting a device structure. Therefore, Naruoka fails to disclose at least the claimed “removing said film constituting a device structure including a device pattern with a chemical solution to expose the crystal surface of the semiconductor wafer,” as recited in claim 9.

Since Naruoka does not disclose each and every element of claim 9, it cannot anticipate Applicants’ claim 9 under 35 U.S.C. § 102. Accordingly, claim 9 is allowable over Naruoka, and claim 15 is allowable at least due to its dependence from claim 9. The rejection of claims 9 and 15 under 35 U.S.C. § 102(e) should therefore be withdrawn.

Applicants respectfully traverse the Examiner’s rejection of claims 6, 9, 10, 12-14, 23, 24, 32, 33, 35, and 36 under 35 U.S.C. § 103(a) as being unpatentable over Barge in view of Naruoka. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant ’s disclosure. *In re Vaeck*,

947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142 (8th ed. August 2006 revision).

A *prima facie* case of obviousness has not been established because, among other things, Barge and Naruoka, taken alone or in combination, fail to teach or suggest each and every element of claims 6, 9, 10, 12-14, 23, 24, 32, 33, 35, and 36.

The Examiner admits that “Barge fails to disclose the formation of a device structure with a device pattern.” Final Office Action at page 3. Moreover, as discussed above in regard to the § 102(e) rejection, Naruoka also fails to teach removing a film constituting a device structure with a device pattern. Therefore, Barge and Naruoka, whether alone or taken in combination, necessarily fail to teach the claimed step of “removing said film constituting a device structure with a device pattern,” as recited in claim 9.

Accordingly, claim 9 is allowable over the combination of Barge and Naruoka, and claims 10 and 12-14 are allowable at least due to their dependence from claim 9. In addition, while of different scope, independent claims 23, 32, 33, 35, and 36 recite features similar to those recited in claim 9 and are thus allowable at least for reasons discussed above in regard to claim 9; and claims 6 and 24 are allowable at least due to their dependence from independent claim 32 and 23, respectively.

For at least this reason, no *prima facie* case of obviousness has been established for claims 6, 9, 10, 12-14, 23, 24, 32, 33, 35, and 36. The rejection of claims 6, 9, 10, 12-14, 23, 24, 32, 33, 35, and 36 under 35 U.S.C. § 103(a) should therefore be withdrawn.

Applicants respectfully traverse the Examiner's rejection of claims 8, 11, 25, and 34 under 35 U.S.C. § 103(a) as being unpatentable over Barge and Naruoka in view of Sato, and the rejection of claim 22 over Barge and Naruoka in view of Chiang. A *prima facie* case of obviousness has not been established.

The rejection of claim 8 has been rendered moot by the cancellation of claim 8.

Claims 11, 22, and 25 depend from claim 9 or claim 23. A *prima facie* case of obviousness has not been established because, among other things, the cited references, taken alone or in combination, fail to teach or suggest each and every element of independent claims 9, 23, and 34.

As discussed above in regard to the other rejections, Barge and Naruoka each fail to teach or suggest a film constituting a device structure with a device pattern. Sato, which was cited by the Examiner only for its disclosure of a 49% solution of HF (See Final Office Action at page 4), fails to cure the deficiencies of Barge and Naruoka. In addition, Chiang, which was cited by the Examiner only for its disclosure of ultrasonic waves for cleaning (See Final Office Action at page 4), also fails to cure the above-noted deficiencies of Barge and Naruoka. Accordingly, claims 11, 22, 25, and 34 are allowable over the cited references, taken alone or in combination.

For at least the reasons presented above, no *prima facie* case of obviousness has been established for claims 11, 22, 25, and 34. The rejection of claims 11, 22, 25, and 34 under 35 U.S.C. § 103(a) should therefore be withdrawn.

Objected-to claims 16-21 are also allowable at least due to their dependence from claim 9.


Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing pending claims 6, 9-25, and 32-36 in condition for allowance. Applicants submit that the proposed amendments of the claims do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, and should allow for immediate entry by the Examiner. Therefore, entry of this Amendment and a timely issuance of a Notice of Allowance are earnestly requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By: 
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